

CLAIMS

1. A silicon carbide epitaxial wafer which is formed on a substrate that is less than 1° off from the {0001} surface of silicon carbide having an α -type crystal structure.
2. The silicon carbide epitaxial wafer according to claim 1, wherein said silicon carbide epitaxial wafer is formed on a substrate of the (000 $\bar{1}$) C face.
3. The silicon carbide epitaxial wafer according to claim 1 or claim 2, wherein a silicon carbide substrate having a 4H crystal structure is used.
4. The silicon carbide epitaxial wafer according to any one of claims 1 to 3, wherein said silicon carbide epitaxial wafer has a flat surface.
5. A semiconductor device formed on the epitaxial wafer according to any one of claims 1 to 4.
6. A manufacturing method of a silicon carbide epitaxial wafer, wherein silicon carbide is epitaxially grown on a substrate that is less than 1° off from the {0001} surface of silicon carbide having an α -type crystal structure.
7. The manufacturing method of a silicon carbide epitaxial wafer according to claim 6, wherein silicon carbide is epitaxially grown on a substrate of the (000 $\bar{1}$) C face.
8. The manufacturing method of a silicon carbide epitaxial wafer according to claim 6 or claim 7; wherein silicon carbide is epitaxially grown on a silicon carbide substrate having a 4H crystal structure.
9. The manufacturing method of a silicon carbide epitaxial wafer according to any one of claims 6 to 8, wherein the substrate surface is cleansed with a mixed gas of hydrogen gas and propane gas of 1400°C to 1600°C.
10. The manufacturing method of a silicon carbide epitaxial wafer according to any one of claims 6 to 9, wherein the height of the substrate surface step is 1nm or less.
11. The manufacturing method of a silicon carbide epitaxial wafer according to any one of claims 6 to 10, wherein a source gas of silane and propane is used upon epitaxially growing silicon carbide.

12. The manufacturing method of a silicon carbide epitaxial wafer according to any one of claims 6 to 11, wherein a growth pressure of 250mbar or less is used upon epitaxially growing silicon carbide.

13. The manufacturing method of a silicon carbide epitaxial wafer according to
5 any one of claims 6 to 12, wherein a source gas in which the composition ratio of C and Si is 1 or less is used upon epitaxially growing silicon carbide.

14. A silicon carbide epitaxial wafer manufactured with the epitaxial growth according to any one of claims 6 to 13.

15. A semiconductor device formed on the silicon carbide epitaxial wafer
10 according to claim 14.